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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,524

09/01/2006

Kei Tashiro

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22852

7590

07/30/2009

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EXAMINER

HEINCER, LIAM J

ART UNIT

PAPER NUMBER

1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,524	<b>Applicant(s)</b> TASHIRO ET AL.	
	<b>Examiner</b> Liam J. Heincer	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 26, 2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al. (JP 2004-099696) as evidenced by S. Kawahara et al. (Polym. Adv. Technol. 2004; 15: 181-184) Note: A machine translation is being used for JP 2004-099696 and all citations will be directed towards the machine translation.

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Considering Claim 1, 6, and 7: Kawahara et al. teaches a method for deproteinizing natural rubber latex (¶0001) comprising adding a urea denaturing agent (¶0008-09) and a surface active agent/surfactant (¶0015) to a natural rubber latex (¶0010); mixing and agitating the mixture (¶0028); and separating the denatured proteins from the rubber latex (¶0014).

Kawahara et al. does not teach the mixing as occurring during the transportation through a fluid channel. However, it is obvious to transform a known batch process into a continuous process. See MPEP § 2144.04 (V). Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have made the process of Kawahara et al. continuous/mix the components in a transportation channel, and the motivation to do so would have been to make the process more efficient and cost effective.

Kawahara et al. teaches the mixing temperature as being 5 to 90 degrees C (¶0013). This overlaps with the claimed range of 0 to 30 degrees C. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). See MPEP § 2144.05. A person having ordinary skill in the art at the time of invention would be motivated to choose the lower end of the disclosed range to reduce heating costs during the process.

Kawahara et al. does not teach the mixing time as being from 5 to 10 minutes. However, “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A person having ordinary skill in the art at the time of invention would have considered the mixing time to be a result effective variable, as Kawahara et al. teaches that reaction time affects cost and the amount of rubber that can be produced (¶0006). It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the mixing time through routine optimization, and the motivation to do so would have been to reduce the cost of production.

Additionally, S. Kawahara et al. teaches that urea in the presence of a surfactant (pg. 181) will reduce the nitrogen content of the rubber/sufficiently denature the proteins substantially within the first ten minutes of the incubation (pg. 182).

Considering Claim 2: Kawahara et al. teaches using the urea in an amount of 0.2 weight percent (Example 1).

Considering Claim 3: Kawahara et al. teaches using the surface active agent in an amount of 0.01 to 10 weight percent (¶0012).

Considering Claim 4: Kawahara et al. teaches the separation as being preformed through centrifugal separation treatment (¶0007).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (Purification of Natural Rubber with Urea), presented in applicant's IDS (9/1/06), in view of Trautman (US Pat. 5,777,004) as evidenced by S. Kawahara et al. (Polym. Adv. Technol. 2004; 15: 181-184).

Considering Claims 1 and 4-7: Saito et al. teaches a method of denaturing natural rubber latex (page 1) comprising adding a urea denaturing agent and a surfactant to a natural rubber latex (page 1); and centrifuging the mixture at 10,000 G (page 1). Saito et al. also teaches that the mixing temperature is room temperature/between 0 and 30 degrees C.

Saito et al. doesn't teach agitating the mixture. However, Trautman teaches agitating a mixture of a natural rubber latex and a denaturing agent (5:29-35). Saito et al. and Trautman are analogous art as they are concerned with the same field of endeavor, namely denaturing natural rubber latex proteins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have agitated the mixture of Saito et al. as in Trautman and the motivation to do so would have been, as Trautman suggests, to ensure complete hydrolysis of the proteins (5:29-35).

Saito et al. does not teach the mixing as occurring during the transportation through a fluid channel. However, it is obvious to transform a known batch process into a continuous process. See MPEP § 2144.04 (V). Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have made

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the process of Saito et al. continuous/mix the components in a transportation channel, and the motivation to do so would have been to make the process more efficient and cost effective.

Kawahara et al. does not teach the mixing time as being from 5 to 10 minutes. However, “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A person having ordinary skill in the art at the time of invention would have considered the mixing time to be a result effective variable, as reaction time affects cost and the amount of rubber that can be produced. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the mixing time through routine optimization, and the motivation to do so would have been to reduce the cost of production.

Additionally, S. Kawahara et al. teaches that urea in the presence of a surfactant (pg. 181) will reduce the nitrogen content of the rubber/sufficiently denature the proteins substantially within the first ten minutes of the incubation (pg. 182).

Considering Claim 2: Saito et al. teaches the amount of urea added as being 0.1 weight percent (page 1).

Considering Claim 3: Saito et al. teaches the amount of surfactant as being 1 weight percent (page 1).

### ***Double Patenting***

Applicant is advised that should claim 1 be found allowable, claims 6 and 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Response to Arguments***

Applicant's arguments filed May 26, 2009 have been fully considered but they are not persuasive, because:

A) Applicants argument that Kawahara et al. does not teach temperatures below 30 °C is not persuasive. While, Kawahara et al. does show preference for temperatures between 30 and 60, Kawahara et al. teaches that the mixing temperature can be between 5 and 90 °C (¶0015). This overlaps with the claimed range of 0 to 30 °C. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). See MPEP § 2144.05.

Additionally, S. Kawahara et al. does not teach that the reaction will not occur below 30 °C. S. Kawahara et al. uses 30 °C during an experiment (pg. 182), but does not appear to teach that temperatures below this will not result in denaturing of the rubber proteins.

B) Applicants argument that the criticality of a mixing time between 5 and 10 minutes has been established is not persuasive. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 2144.05. The fact that uses mixing times around ten minutes is not sufficient to establish unexpected results absent comparisons with the prior art mixing times.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1796

LJH

July 17, 2009